

Applicants: Jeremy Green et al.
Application No.: 10/808,678

REMARKS

The Restriction Requirement

The Election of Restriction Group I, encompassing claims 47, 59-68, and 71-101, without traverse is acknowledged. At that time when the pending claims are found allowable, applicants request rejoinder of withdrawn claims 52 and 53.

The Claim Amendments

Claim 47 has been amended to recite a pharmaceutical composition comprising a compound of formula I and claim 50 has been amended to recite an *in vitro* method of using said composition or compound, wherein in each of these claims:

(i) R¹ is Ar¹, wherein the groups representing Ar¹ are shown. Support for these amendments is found in paragraph [0088] on pages 31-32 of the specification. In addition, the groups representing Cy¹ are shown. Support for these amendments is found in paragraph [0093] on page 34 of the specification.

(ii) Each occurrence of Z is independently a bond or a C₁₋₆ alkylidene chain, wherein up to two non-adjacent methylene units of Z are optionally replaced by -S-, -O-, -N(R)-, -N(R)C(O)-, -C(O)N(R)-, -SO₂N(R)-, or -N(R)SO₂-. Support for these amendments is found in claims 1, 47, and 50 as originally filed.

(iii) Each occurrence of R^X is independently -R', halogen, NO₂, CN, -OR', -SR', or -N(R')₂. Support for these amendments is found in claims 1, 47, and 50 as originally filed.

(iv) Each occurrence of R is independently hydrogen or a C₁₋₆ aliphatic group and each occurrence of R' is independently hydrogen, a C₁₋₆ aliphatic group, a C₆₋₁₀ aryl ring, a heteroaryl ring having 5-10 ring atoms, or a heterocyclyl ring having 3-10 ring atoms. Support for these amendments is found in claims 1, 47, and 50 as originally filed.

(v) R² is hydrogen. Support for these amendments is found in paragraph [0099] on page 35 of the specification and in claims 1, 47, and 50 as originally filed.

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(vi) T is CH. Support for these amendments is found in paragraph [00101] on page 35 of the specification and in claims 1, 47, and 50 as originally filed.

(vii) A¹ is C-halogen, C-CN, or C-R. Support for these amendments is found in paragraph [00103] on page 35 of the specification and in claims 1, 47, and 50 as originally filed.

(viii) Each of A² and A³ is, independently, CR⁴. Support for these amendments is found in paragraphs [00107] and [00113] on pages 36 and 37, respectively, of the specification and in claims 1, 47, and 50 as originally filed.

(ix) L is a C₁₋₆ alkylidene chain wherein one methylene unit of L is optionally replaced by -O-, -N(R)-, -N(R)C(O)-, -C(O)-, -C(O)N(R)-, -SO₂N(R)-, or -N(R)SO₂-. Support for these amendments is found in paragraph [0095] on page 34 of the specification and in claims 1, 47, and 50 as originally filed.

In addition to the amendments described above, the order in which the substituents of a compound of formula **I** are recited in claims 47 and 50 has been changed in order to make the claim clearer.

Claims 49, 59, 61-68, 71-80, 82, 91, and 99-100 have been canceled.

Claim 60 has been amended to delete the group identifiers and to change the antecedent basis for this claim. The amendment find support in claim 60 as originally filed.

Claims 85 and 94 have been amended to show the structures of the groups recited by these claims. Support for these amendments is found in claims 85 or 94 as originally filed and in paragraph [0093] on page 34 of the specification.

Claims 86 and 95 have been amended to show the structures of the groups recited by these claims. Support for these amendments is found in claims 86 or 95 as originally filed and in paragraph [0088] on pages 31-32 of the specification.

Claim 101 has been amended such that compounds **I-10** and **I-16** have been deleted.

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None of the amendments contain new matter. Their entry is requested.

Applicants reserve the right to pursue canceled subject matter in the instant application or in any application claiming priority therefrom.

The Response

Rejections under 35 U.S.C. § 112, second paragraph

The Examiner has rejected claims 47, 59-68, and 71-100 under 35 U.S.C. § 112, second paragraph, for allegedly failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the Examiner asserts that variables such as Ar¹ and Cy¹ are defined as 5-7 membered and 3-7 membered ring systems without distinctly claiming what ring systems are recited. Claims 59, 61-68, 71-80, 82, 91, and 99 have been canceled. Claim 47 has been amended such that the groups representing Ar¹ and Cy¹ are recited, thus obviating the Examiner's rejection of this claim and claims dependent thereon. Accordingly, applicants respectfully request that the Examiner withdraw the rejection of claims 47, 60, 81, 83-90, 92-98, and 100 under 35 U.S.C. § 112, second paragraph.

Rejections under 35 U.S.C. § 112, first paragraph

The Examiner has rejected claims 47, 50, 59-68, and 71-101 under 35 U.S.C. § 112, first paragraph, for allegedly lacking enablement. In particular, the Examiner asserts that the specification does not reasonably provide enablement for the plurality of possible structures claimed. In particular, the Examiner states that the functionalities recited for a compound of formula I are incompatible with the direction and working examples provided for making the claimed invention.

Claims 59, 61-68, 71-80, 82, 91, and 99 have been canceled. Claims 47, 50, 60, 81, 83-90, 92-98, and 100-101 have been amended such that the recited substituents for a compound of formula I are compatible with the methods for making and using the

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claimed invention that are provided in the working examples on pages 43 to 61 of the specification, thus obviating the Examiner's rejection of these claims. Accordingly, applicants respectfully request that the Examiner withdraw the rejection of the instant claims under 35 U.S.C. § 112, first paragraph.

Rejections under 35 U.S.C. § 102(b)

The Examiner has rejected claim 47, 59, and 63 under 35 U.S.C. § 102(b) for allegedly being anticipated by the following references: Ishchenko et al. *Geterotsiklicheskikh Soedinenii* 2002, 38(3), 274-280 (hereafter "Ishchenko 1") and Lacova et al., *Molecules* 1998, 3(3), 120-131 (hereafter, "Lacova"). In addition, the Examiner alleges that Meshcheryakova et al., *Farmatsevticheskii Zhurnal* 1976, 10(3), 37-41 (hereafter, "Meshcheryakova 1") or Basinski et al., *Polish J. of Chemistry* 1991, 65(9-10), 1619-32 (hereafter, "Basinski") anticipate compounds **I-11** and **I-15** of claim 101. Furthermore, the Examiner cites other references that were not relied upon in the rejection but which also supposedly anticipate the present invention. These prior art citations include: Ishchenko et al., *Khimiya Geterotsiklicheskikh Soedinenii* 1995, 3, 322-324 (hereafter "Ishchenko 2"); Grishko et al., *Ukrainskii Khimicheskii Zhurnal* 1985, 51(2), 211-217 (hereafter, "Grishko"); Balbi et al., *Farmaco, Edizione Scientifica* 1982, 37(6), 387-397 (hereafter, "Balbi"); Peglion et al., U. S. Patent No. 5,593,989 (hereafter, "Peglion"); Beugelmans et al., *Tetrahedron Letters* 1976, 25, 2145-2148 (hereafter, "Beugelmans"); Vorozhtsov et al., *Doklady Akademii Nauk SSSR* 1965, 164(5), 1046-1049 (hereafter, "Vorozhtsov"); Bell et al., *Australian J. of Chemistry* 1963, 16(4), 690-694 (hereafter, "Bell"); Meshcheryakova et al., *Khimiko-Farmatsevticheskii Zhurnal* 1976, 10(3), 37-41 (hereafter, "Meshcheryakova 2"); Blicke et al., *J. of Organic Chemistry* 1960, 25, 693-698 (hereafter, "Blicke"); and Aitmambetov et al., *Khimiya Prirodnykh Soedinenii* 2000, 36(1), 47-50 (hereafter, "Aitmambetov").

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Applicants traverse in view of the amended claims. In order for a reference to anticipate a claim under U.S.C. § 102(b), it must teach each and every element as set forth in the claim. See § 2131 of the Manual of Patent Examining Procedure. The instant claims recite pharmaceutical compositions and methods of using the pharmaceutical compositions, wherein the compositions comprise the recited compounds of formula **I** and a pharmaceutically acceptable carrier, adjuvant, or vehicle. None of Ishchenko 1, Lacova, Meshcheryakova 1, and Basinski; nor do any of Ishchenko 2, Grishko, Balbi, Peglion, Beugelmans, Vorozhtsov, Meshcheryakova 2, and Aitmambetov describe a pharmaceutical composition comprising a compound of the invention. Accordingly, applicants respectfully request that the rejection of claims 47, 59, 63, and 101 under U.S.C. § 102(b) be withdrawn.

Conclusion

Applicants request that the Examiner consider the remarks herein and allow the claims to pass to issue. Should the Examiner deem expedient a telephone discussion to further the prosecution of the above application, applicants request that the undersigned be contacted at the Examiner's convenience.

Respectfully submitted,

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